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The development, implementation and evaluation of an Evidence-Based Biohazard Training Program within a Pediatric Ambulatory Practice

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GW Nursing

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The development, implementation and evaluation of an Evidence-Based Biohazard Training Program within a Pediatric Ambulatory Practice

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The Development, Implementation and Evaluation of an Evidence-Based Biohazard Training Program within a Pediatric Ambulatory Practice

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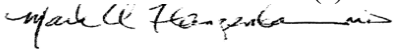

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Abstract

Background: Communicable disease(s) such as Ebola or Coronavirus can cause a catastrophic health crisis within the United States healthcare system, especially among the pediatric and elderly population. Lack of knowledge, skills and confidence among health care professionals in the pediatric setting regarding these infectious organisms can affect early identification, proper isolation, early treatment, and increased risk of a possible pandemic and/or fatalities.

Aims/Objectives: The aim of this study was to develop, implement and evaluate an evidence-based biohazard training program-using the Identify, Isolate and Inform (3I) tool within a pediatric urgent care center to increase the staff's knowledge, skills and confidence in managing these high-risk patients.

Methods: This quality improvement project involved sixteen pediatric urgent care center staff members who took part in the biohazard-training program utilizing a pre and posttest via a modified Knowledge, Skills, Attitude (KAP) survey.

Results: A 70% knowledge (K) score, 96.9% attitude (A) score and 87.5% practice (P) score including a total KAP score of 84.8% were obtained at baseline with 56.2% self-report confidence. After the completion of the evidence-based biohazard-training program, a 10% increase in the categories of knowledge, attitude and practice was found and maintained for 60-days post training with an increased confidence level of 74.5%.

Conclusion: An evidence-based biohazard-training program using the 3I tool is useful in the identification and management of communicable disease(s). The training program may be an effective preventative measure to minimize

infection and prevent the spread of a contagion. Therefore, more research is needed with a larger sample size to determine its usefulness within a clinical setting.

Keywords: biohazard, Identify, Isolate and Inform tool, 3I, Knowledge, Attitude and Practice, KAP

The development, implementation and evaluation of an Evidence-Based Biohazard Training Program within a Pediatric Ambulatory Practice

Introduction

The Pandemic of 1918 was one of the most severe outbreaks in modern history. Nearly one-third of the world's population was infected with this strain of influenza and about fifty million people lost their lives as a result (Centers for Disease Control and Prevention (CDC), 2019). The recent outbreak of Ebola 2014 caused international concern and the immediate need for emergency preparedness plans for all healthcare facilities. Unfortunately, "globalization and population mobility allow infectious disease to spread globally with relative ease" (Steinkuller, Harris, Vigil, & Ostrosky-Zeichner, 2018, p.7). In order to prevent a pandemic as that in 1918, an evidence-based biohazard-training program must be established.

Historically, biohazards refer to any chemical or biological material that is dangerous or life threatening to humans. Any one can become infected with these agents. Those who have been exposed are likely to seek help at an emergency department or urgent care center. For the purpose of this paper, biological biohazards will be the main focus. It is important to have early recognition, use proper protective equipment (PPE), isolate and inform the appropriate personnel. Most emergency preparedness programs focus on adults rather than children. However, children are vulnerable and more susceptible to biohazards because they are constantly exploring their world by crawling on the floor, putting things in their mouths or touching various surfaces. As a result, pediatric patients are misdiagnosed or receive late treatment due to their atypical presentation. This DNP project developed, implemented and evaluated an

evidence-based biohazard training program-using Identify, Isolate and Inform (3I) tool within a pediatric urgent care center to increase staff's knowledge, skills and confidence in managing these high-risk patients.

Of note, after this study's completion and during the writing of this paper, the novel Coronavirus (COVID-19) infection emerged and quickly spread to epidemic and then pandemic proportions. The pediatric ambulatory practice described in this study was directly impacted by the current pandemic. The discussion and conclusion of this paper will reference this real-time global health threat.

Background and Significance

Bioterrorism, emerging and re-emerging infectious diseases pose a real threat to and within the United States. Many infectious diseases can cause widespread hysteria that may lead to an epidemic or even a pandemic. Ebola is one of the world's most deadly contagions. The outbreak of 2014 showed the lack of preparedness seen in other western countries, especially within the United States. "Ebola virus reached the United States in September 2014…recognition that current Ebola outbreak unlike its predecessors, forced healthcare organizations and public health systems across the U.S. to intensify their preparedness efforts" (Faherty & Doubeni, 2015, p.1738). With the successful containment of the 2014 outbreak, hysteria has decreased within the hospitals and ambulatory setting. However, Ebola has re-emerged in 2017. As of March 2019, the second largest Ebola outbreak in history was in the Democratic Republic of Congo with 680 people infected of which 414 have died

(Belluz, 2019). This was the first time that Ebola had been seen in an active war zone. Thus, making it harder to contain and manage.

As a provider in a pediatric urgent care practice near a military installation that deploys relief workers and military personnel, it is essential that an evidence-based biohazard preparedness training program using the Identify, Isolate and Inform (3I) tool be established to identify these high-risk patients.

The Centers for Disease Control and Prevention (CDC) established the 3I tool (Appendix C) due to the Ebola Outbreak of 2014. The CDC issued guidance on how nonemergency departments and ambulatory care settings should be vigilant and prepare for the unlikely event that a person with an infectious disease such as Ebola might show up to their facility. (Chea eat al, 2015). The 3I tool has been adapted in various settings to reduce exposure and prevent the spread of infection by following these three simple steps. Chea et al (2015) state that ambulatory care setting facilities should focus on preparedness plans for early identification of high-risk patients, limit direct contact with known or suspected person, and notify public health department for further guidance. The tool has been modified for infectious diseases such as measles, zika virus and middle eastern respiratory syndrome-related coronavirus (MERs). Koenig explains that the Identify, Isolate and Inform tool could be used in real-time for any emerging infectious disease (s) (2016, p.238).

The 3I tool was utilized in the pediatric urgent care setting for this DNP project to facilitate the early recognition and management of high-risk patients. The tool followed the guidance of CDC and was adjusted as needed. Thus, it helped to

reduce the risk of exposure among patients, staff, community in which we serve and prevent the further spread of communicable disease(s).

Needs Assessment

A strengths, weakness, threats, and opportunities (SWOT) analysis was conducted on the pediatric urgent care to assist in the development and implementation of this quality improvement project (Appendix D). Delivering high quality care to pediatric patients and their families was one of the greatest strength's that the organization possesses as well as strong leadership and employee engagement. The leadership listened to their employees concerns and/or issues, loved to teach, were eager to share their wealth of knowledge and skills and were always looking for innovative ideas to move their organization forward. Each employee was actively engaged within the organization. They went above and beyond their job duties to ensure providers were well taken care of, supplies and personnel were available for the day, daily operational needs were met, and repairs were identified to schedule maintenance as needed. Also, each employee was always thinking of new ideas to make the pediatric urgent care by being more proficient, efficient and safe for all. On the other hand, the most significant weakness was a lack of an evidence-based biohazard training program using the 3I tool to help employees identify patients at a high risk of communicable diseases. A few weaknesses identified for this project were timing and lack of employee participation in the study.

In contrast to strengths and weaknesses, opportunities and threats were analyzed. Several opportunities existed. The pediatric urgent care center most likely benefited from an evidence-based biohazard training program using the 3I tool by leading ambulatory care facilities with staying at the forefront of surveillance, containing the contagion, working with community disaster leaders and

keeping staff up to date on the latest biohazard agents and trained on how to handle those patients efficiently, effectively and safely. Interesting opportunities were health policy discussions and/or changes by allowing open discussions on emerging or re-emerging infectious disease(s), safety issues or concerns, containment, or preparedness plans within the community in which the ambulatory practice operated. There were minimal threats to the organization since it was the only pediatric ambulatory practice within the Stafford, VA area and the few counties surrounding it. However, the lack of staff participation, resistance to change and limited resources posed potential risk to the DNP project.

The success of this quality improvement project was dependent on staff participation and willingness to keep our facility safe. This required them to be active, engaged and innovative both during and after the implementation of the project. Success was when each employee became more vigilant, knowledgeable, and had increased skills to identify high-risk patients using the Identify, Isolate and Inform tool that they learned through the evidence-based biohazard training program.

Problem Statement

Minimal research existed on evidence-based biohazard training programs within a pediatric urgent care center as well as the staff's knowledge, skills and confidence level in managing suspected or known children with biological agent(s). The lack of knowledge, early identification, management and preparedness may jeopardize the welfare of the child, family, employee and community. In particular, pediatric patients with similar symptoms who arrive in clusters should trigger high suspicion from medical staff of a possible biological agent. Most pediatric providers and staff in an ambulatory setting were not well informed, educated or equipped to manage these children (Stankovic et al, 2009).

The employees within the pediatric urgent care center in which this DNP project took place had minimal training to recognize and manage suspected cases. A straight-forward, easy to understand biohazard-training program utilizing the Identify, Isolate and Inform (3I) tool should be developed within the pediatric ambulatory practice to increase the staff's ability to identify, manage, and care for suspected or known patients of biohazards as well as trigger the proper response system, thus preventing the spread of the contagion. The evidence-based biohazard training program was optimized to ensure the most current evidence-based research and guidelines were utilized, proper use of personal protective equipment (PPE), and education on the most common infectious disease(s) needed for immediate isolation. This program increased the staff's knowledge, attitude, practice and feelings of preparedness.

Aims and Objectives

A. To develop an evidence-based biohazard training program utilizing 3I tool
    1. By July 2019, design a brief, but thorough evidence-based training program utilizing Identify, Isolate and Inform tool.
    2. By July 2019, create training materials for implementation on of training program.
B. To implement an evidence-based biohazard training program utilizing 3I tool
    1. Plan, establish and confirm date and time for staff training by end of August 2019.
    2. Conduct educational training with staff in September 2019 with at least a 100% attendance rate.
C. To evaluate an evidence-based biohazard training program utilizing 3I tool

1. Obtain a baseline of knowledge using a pre-test 1-week before training with at least a 50% return rate and score of at least a 50% or greater.
2. Acquire baseline confidence self-report from staff before training commences with a baseline of at least a 50%.
3. By utilizing a posttest, assess the effectiveness of training immediately at the end of training with at least a 100% return rate and at least a 10% improvement from the pretest.
4. By utilizing a posttest, reassess the effectiveness of training at 30 days post training with at least a 75% return rate and at least a 60% knowledge retention.
5. By utilizing a posttest, reassess the effectiveness of training at 60 days post training with at least a 60% return rate and at least a 50% knowledge retention.
6. Acquire post confidence self-report from staff immediately after training and have at least a 75% increase in confidence self-report.

Review of Literature

PubMed, Scopus, and CINAHL were utilized to perform a literature search strategy to identify an evidence-based biohazard training program that will increase staff knowledge, skills and confidence. The search terms included were infection control, outpatient, identify/isolate/inform, training, nurses and Kirkpatrick evaluation tool. To further aid in the literature search, the George

Washington (GW) Librarian, Thomas Harrod was consulted to identify and navigate the databases as well as to explore alternative search terms to construct the literature review table of evidence (Appendix A).

The database PubMed is a search engine that focuses on biomedical and life science topics. The MeSH terms used were infection control, outpatient and identify/isolate and inform. Some Boolean operators were "outpatient or ambulatory", "infection control or disease preparedness", and/or "instrument or tool or assessment". This search resulted in 1 article.

The second database utilized in this search was Scopus. Scopus is one of the largest databases of peer-reviewed literature that covers physical science, social science, life science and health science. The MeSH terms used were identify, isolate and inform tool. Some Boolean operators included "identify and isolate and inform tool". One hundred eighty-two articles were found matching these terms. The search was further limited to English only within United States and within 5 years of publication. As a result, sixty-six articles were left. The abstracts were reviewed to determine eligibility. Sixty articles were excluded due to not having identify, isolate and inform tool within the study.

CINAHL is a Cumulative Index of Nursing and Allied Health Literature and is one of the largest nursing research databases. The MeSH terms used were infection control, instruments, training, evaluation and nurses. Some Boolean operators included "nurse perception or attitudes or knowledge" and "instrument or tool or assessment". This resulted in 24 articles. Three articles were duplicates. Thirteen were in a different language and eight did not fit the research question. In the same database, the key term "Kirkpatrick evaluation tool" was used. This search resulted in ten articles. Only four articles utilized the Kirkpatrick evaluation tool.

Identify, Isolate and Inform (3I) Tool

The CDC developed the 3I tool as a result of the Ebola outbreak of 2014 as guidance to health care professionals. The current guidance for patients with possible Ebola virus was to identify travel history and direct exposure, isolate immediately while avoiding or having minimal direct contact and inform local health department to prepare for safe transport to the nearest hospital designated by them (Appendix C). The tool has been adapted to emerging and re-emerging infectious diseases such as Zika virus, Middle Eastern respiratory syndrome (MERS), Measles, Pertussis and Hepatitis A. The 3I tool provided a concise and simplified version of exposure types to allow for rapid assessments by frontline emergency personnel (Koenig, 2015). Use of the 3I tool will assist emergency physicians in performing rapid and appropriate screening and management and counseling for patients… (Koenig, Almadhyan, & Burns, 2016, p.243). Furthermore, Koenig et al (2019, p. 196) assert the "3I tool can aid emergency department staff in readily recognizing key symptoms of the disease and risk factors for exposure". Chea et al (2015, p. 1245) explain "it is unlikely that a person with Ebola will present to an ambulatory care facility unexpectedly; however, ambulatory care facilities should be prepared including all staff to reduce infection risks and anxiety levels". Therefore, identify, isolate and inform tool may provide a way to keep health care professionals, patients and the general public safe.

Kirkpatrick Evaluation Model

The Kirkpatrick evaluation model was useful in evaluating the effectiveness of training programs (Appendix H). This model has served as the primary organizational design for thirty years and is the most comprehensive strategy for evaluating organizational training (Abdulghani, 2014, p. S25). The model consists of four levels: reaction, learning, behavior and results. The first level provided insight into the participants' perception of the training course or program. The second level assessed whether the objectives

were met based off of an intervention such as a pre or posttest given to the participant. The third level evaluated the participant's change of behavior by assessing their job performance. Then, the researcher was able to assess if the learned skill or knowledge was translated into practice. Lastly, the fourth level measured the impact on the organization or environment. Abdel-All et al demonstrated the Kirkpatrick evaluation model within their study by providing training to Accredited Social Health Activists (ASHA) on hypertension in rural India (2018). The study demonstrated an increase of knowledge among ASHAs by twenty percent post training as well as a change in behavior. Participants were able to return demonstration of proper measurement of blood pressure, weighing participants, explain handouts as instructed, help set SMART goals and review action plans (Abdel-All, 2018). In turn, Simpson and Scheer (2016) conducted a review of literature to identify training gaps among physicians that had fellowships or subspecialty training in breast surgical oncology and surgical oncology between the years of 1990 to 2014. A survey in 2010 found that ninety-eight percent of the respondents felt that they were well prepared by their fellowship program for performing breast cancer surgery but ill prepared to use image guided biopsy, complex oncoplastic and radiation techniques (Simpson & Scheer, 2015). In acquiring this information, fellows were able to improve their training program by implementing a hands-on labs and didactic course that includes these techniques. In another study, one hundred twenty-nine graduate nursing students were evaluated on the effectiveness of evidence-based practice courses (Zelenikova, Beach, Ren et al, 2015). Most of the respondents agree or perceived that the courses were effective. "Competency assessment can determine the efficacy of training interventions in closing knowledge and skill gaps and in assessing and improving training" (Zelenikova, 2015, p. 269). Overall, the Kirkpatrick evaluation model was helpful in identifying,

assessing and implementing creative ways to increase the learners' knowledge and skills through their feedback of the training course or program.

Knowledge, Attitude and Practice Survey/Questionnaire

The knowledge, attitude and practice (KAP) survey may provide reliable feedback in baseline knowledge, perception and current practice. The survey reveals biases, misconceptions and/or barriers. Shaghaghin, Pardis, & Mansoori (2014) study showed undesirable results of dentists' KAP toward prophylaxis treatment, Post-Exposure Prophylaxis (PEP). 61% of the dentist believed that PEP could reduce the chance of acquiring AIDS while 85% who attended the infection control seminar believed that immediate washing of a contaminated area was effective in the prevention of hepatitis and AIDS (Shaghaghin, Pardis, & Mansoori, 2014, p. 151). Interestingly, the study found that dentists who were exposed to blood or bodily fluids did not take prophylaxis treatment, PEP, nor did they obtain lab work including titers or lab work from the patient in question. A study by Quet et al (2015) identified improving the knowledge and practices of antibiotic prescribers by providing evidence-based information on local antibiotic resistance and locally available antibiotics through a KAP survey (p. 225). This survey discovered a low confidence level among doctors in prescribing generic antibiotics to their patients. Also, one hundred seventy-four doctors thought that the restriction of antibiotics was an effective measure to contain antibiotic resistance and two hundred eighty doctors agreed that it was difficult to prescribe the correct antibiotic (Quet et al, 2015, p. 221-222). In Kenya, six million people are infected with an infectious worm, known as Schistosomiasis (Mwai, Njenga, & Barasa, 2016, p. 819). The study utilized the knowledge, attitude and practice survey to determine the barriers to control the illness and prevention measures among the community members within this region. The survey revealed poor knowledge

about the modes of transmission and preventative measures among its respondents (Mwai, Njenga, & Barasa, 2016, p. 827). Through the KAP survey, Craig et al (2018) identified a need for "greater acknowledgment of nurses' contribution to early warning surveillance and clear communication about how data is being used are warranted" (Craig et al, 2018, p. 707). Collectively, these studies through the KAP survey provided great insight into clinical scenarios so that improvement in education, training, perceptions, behaviors, and/or barriers may be addressed.

Limitations

The literature review provided a good deal of research regarding the identify, isolate and inform tool that has a three-step process. Limited statistical data was available with regards to how these three steps improve health care professional's knowledge, skills and attitudes. Although, this process was used during the Ebola 2014 outbreak in the United States to minimize exposure and spread of the infectious disease, there was minimal data to capture this event. More research is needed on the validity and reliability of this process.

Evidence-Based Practice Translation Model

The John Hopkins Nursing Evidence-Based Practice Model (JHNEBP) was used to guide the development and implementation of the evidence-based biohazard training program to translate research into practice. This model was designed to meet the needs of the practicing nurse and used a three-step process called PET: practice question, evidence and translation (Dang & Dearholt, 2017; Appendix E). The first step was to identify a clinical problem using a PICOT (Problem, Intervention, Comparison, Outcomes and

Time) question format. The PICOT question for this study was as follows: By utilizing a pre and post-test, will the development and implementation of an evidence-based biohazard-training program increase the staff's knowledge and skills to efficiently and safely care for high risk patients within a pediatric ambulatory setting? The next step was to research, analyze and critique the current evidence available (Appendix A). Lastly, the third step of translating research "examines the feasibility of adopting the evidence into practice…vet recommendations for change with senior leadership and garner support for resources (Parkosewich, 2013).

Methodology

The DNP project was a qualitative descriptive study using the 3I tool to establish an evidence-based biohazard training program that was introduced into the pediatric ambulatory practice. This tool allowed the staff to rapidly identify high-risk patients, isolate them immediately, use proper PPE when necessary and inform the local public health department as soon as possible. The 3I tool may be a valid instrument to use on the frontlines for health care professionals (Koenig, 2015). However, the lack of internal consistency within studies may deem it unreliable. In turn, the Kirkpatrick Evaluation Model (Abudlghani et al, 2014) was used to evaluate the effectiveness of this training program among the staff to identify knowledge gaps, barriers and/or areas for improvement by utilizing a pre and posttest. The pretest was given a week prior to the start of the training program and the posttest was given immediately after the training, 30-days post training and 60-days post training.

Setting

The study was conducted at a pediatric ambulatory practice located in Stafford, Virginia. It is about 35 miles outside of Washington, D.C. Stafford is located near Quantico Marine Corp base and majority of its residents are either military or government affiliated. The patient population was pediatric patients up to 21 years of age who has close military and/or government affiliation.

Study Population

Providers, nurses and ancillary staff including front desk registration from the Stafford location and/or others who pick up shifts at this location participated in the study. The sample size was sixteen. This was a small sample size and may not show generalizability. However, it provided sufficient evidence that an evidence-based biohazard training program, using 3I tool was warranted and showed implications for healthcare practice and policy.

Subject Recruitment

Participants were recruited internally by the researcher under the direction of the co-owner of the pediatric ambulatory practice at the Stafford location. Direct discussions with staff members were conducted to identify their interest and enrollment into the study.

Consent Procedure

The consent process was explained through direct discussion and/or email. The participation within the study was voluntary. The participants implied informed consent with their response to the survey which was initiated a week before training commenced. A handout detailing the research was handed to participants at the training program to obtain their written consent for participation in the research study.

Risks/Harms

Participants were able to decline participation in the study without any effect on their employment status. Minimal risks were associated with this study.

Subject Costs and Compensation

There were no costs to the participants. The participants were compensated monetarily by the organization, as the training was considered as an educational training. No additional compensation was given to the participants.

Study Interventions

The study participants received pre and posttests (Appendix G) and a training intervention. The pretest was given a week before training to assess and collect data of baseline knowledge, skills and self-report confidence. The post tests were given immediately after training session, at 30 days post training and at 60 days posts training to assess their knowledge retention and self-report confidence.

Outcomes to be measured

The first outcome to be measured was participants' perception toward biohazards and need for training. The second outcome to be measured was the knowledge, skills and confidence received as a result of the training program. The third outcome to be measured was how well participants retained the knowledge, skills and confidence after training (at 30-days and 60-days post training).

Project Timeline

The project timeline enabled the researcher to track the progression and deadlines in conducting the study. A flexible schedule allowed for adjustments to be made when necessary. Below was a sample timeline for this project.

A. April 2019

    1. Submit DNP Proposal for IRB Approval

B. May/June 2019

    1. Await GW University IRB Approval
    2. Create Excel Spreadsheet for data collection
    3. Research educational materials for training class such as but not limited to handouts, posters, props, videos, etc.

C. July/August 2019

    1. Begin work on educational materials
    2. Create survey monkey account to begin work on pre and post test
    3. Receive approval from primary and secondary advisor for educational materials and pre/posttest

D. September 2019

    1. Send pretest survey to participants one week prior to training session
    2. Conduct training session
    3. Compile and input data into excel spreadsheet

E. October 2019

    1. Send post test to participants at 30-day mark from training session
    2. Compile and input data into excel spreadsheet

F. November 2019

    1. Send posttest to participants at 60-day mark from training session
    2. Compile and input data into excel spreadsheet

G. December to February 2019

    1. Work with biostatistician to synthesize data and accurately/appropriately interpret to include in the final DNP paper

H. March to April 2019

    1. Work closely with primary and secondary advisor to prepare the final DNP project for submission
    2. Work with librarian for any research or data that may be needed for the final DNP paper
    3. Work with writing center to address grammar/sentence structure/errors/APA format for final DNP paper.
    4. Prepare for Final DNP presentation

I. April/May 2019

    1. Submit Final DNP project/paper
    2. Present final DNP project

Resources Needed

The resources needed for this project was the facility to conduct the training, staff, personal protective equipment (gowns, gloves, N95 masks, simple masks, and shoe covers) and signage for implementation of Identify, Isolate and Inform tool.

Results

The purpose of this project was to develop and implement an evidence-based biohazard training program using the Identify, Isolate and Inform (3I) tool to increase the staff's knowledge, skills, attitudes and confidence within a pediatric ambulatory practice to identify communicable disease(s) and/or highly contagious pathogens by minimizing exposure and spread of the contagion. This program was designed to protect the staff, patient and their families and the community, which the clinic serves. The study aims were to develop, implement, and to evaluate an evidence-based biohazard training program utilizing the 3I tool.

A brief, but thorough evidence-based biohazard training program utilizing 3I tool was designed August 2019 along with an evidence-based PowerPoint training for implementation. The educational training with the nursing staff was conducted October 10, 2019 with a 57% attendance rate. A total of 28 participants were invited to attend the training, but only 16 participants attended. 16 participants provided pre-training baseline knowledge and self-report confidence survey responses prior to the Oct. 10, 2019 training session. Immediate, 30-day and 60-day post-training knowledge and self-report confidence survey responses were collected.

Software

Survey Monkey© was used to develop and administer these surveys to each participant through their respective emails. The software allowed for prompt feedback, management of surveys, filtering and comparison of data, and/or export data into

SPSS. The primary research investigator only had access to the collected data, to allow for maximum security, maintenance and privacy.

The data collected within this study was stored and analyzed in Microsoft Excel. This program is part of the Microsoft Office suite. Its features allowed for easy organization, storage, calculation and manipulation of data. This multifaceted program had the ability to perform statistical analysis on provided data, if needed.

To maintain accuracy, security and integrity of the data, only the lead research investigator had access to the excel workbook. The lead investigator double-checked the data entry for accuracy and consulted with Dr. Park, GW Biostatistician who had limited access to the excel workbook when needed to review the data for analysis purposes only. There were no missing data nor outliers of the data., the limitation of the study was based on the low number of participants who completed all posttests at each point. Because of the low number of participants, the results were not generalizable.

Demographics

The participants within the study were mostly women, 21-61 years of age with associate degrees to medical degrees who worked at the pediatric ambulatory practice. Table 1.1 show the demographics of the sample (Appendix F). Only 3 males participated in the study. 96% of the participants were white, not Latino, while the 3.5% were black, not-Latino background. Of the 16 participants, 32% had an associate degree, 17% bachelor's degree, 14% master's degree, 14% medical degree and 21% other. Table 1.1 from Appendix F show that 14 out of the 16 participants had previous biohazard training.

Statistical Analysis

This DNP project utilized descriptive statistics and hypothesis testing for the data analysis. This data provided a better understanding of the study variables, characteristics and identify levels of knowledge, attitudes and practices among the staff in a pediatric ambulatory practice. The independent variables were a completion of a biohazard-training program using 3I tool survey at baseline, immediately after training, 30-days post training and 60-days post training (Appendix F). The dependent variables were total Knowledge, Attitudes and Practice (KAP) score, K score, A score, and P score (Appendix F). This DNP project hypothesized that the staff at the pediatric ambulatory practice would have 60% total KAP score, 50% knowledge (K), 60% attitude (A) score and 50% practice (P) scores at baseline. However, after the completion of the evidence-based biohazard training program, it was expected that these percentages will increase by 15% in each category and maintain for 60-days post training as well as a have a 75% in self-report confidence.

Aims and Objectives

The aims of this project were to develop, implement and evaluate an evidence-based biohazard training program utilizing the 3I tool which had several objectives to demonstrate the effectiveness of the training. The development phase objectives were to design a brief, but thorough evidence-based biohazard training program utilizing Identify, Isolate and Inform tool and create training materials (ie. PowerPoint presentation, handouts, etc.) for implementation of the training program. The implementation phase objectives were to plan, establish and confirm the date and time for staff training and conduct educational training with staff in September with 100% attendance rate. Lastly, the evaluation phase was to obtain a baseline knowledge using a pre-test 1-week prior to training with at least a 50% return rate and score of 50% or greater,

acquire baseline self-report confidence from staff before training commenced with at least a baseline of 50%, utilized posttest to assess the effectiveness of training immediately at the end of training with a 100% return rate and 10% improvement from the pretest, utilized posttest to reassess the effectiveness of training at 30-days post training with at least a 75% return rate and 60% knowledge retention, utilized posttest to reassess the effectiveness of training at 60-days post training with at least a 60% return rate and at least a 50% knowledge retention and acquire post confidence self-report from staff 60-days after training and have at least a 75% confidence self-report.

Data Collected

The pre-test survey was sent to 28 participants one week prior to training session (Appendix F, Table 1.2A). A 57% response rate was obtained from the pre-test survey in which 16 participants responded. The respondents had a 70% knowledge score, 96.9% attitude score and 87.5% practice score. Overall, the participants had a total mean KAP score of 84.8%. The group showed good attitude and practice scores but had a deficit in good knowledge of communicable disease(s), transmission, signs and symptoms and prevention. Of the 28 participants, 17 responded to the baseline self-report confidence survey (Appendix G) which had a 60.7% (n= 10) response rate. 52.6% (n= 8) felt that the current place of employment did not have a protocol for the management of common biohazards that impact the pediatric population. 57.9% (n= 9) were not comfortable utilizing the current guidelines and protocols to care for these patients impacted by today's emerging and re-emerging infections. Over 78.9% (n= 13) of the participants did not feel that they had the adequate resources to quickly access and respond to a potential biohazard situation. The majority of the participants did have experience or training on biohazards.

47% (n= 7) did not feel that they were adequately prepared to handle an Ebola patient during the outbreak of 2014, while 31.5% (n= 5) did feel prepared. In conclusion, the 17 participants had an overall 56.2% (n= 9) baseline feelings of preparedness.

A posttest was given to the 16 participants after the evidence-based biohazard training program to assess the effectiveness of training immediately at the end of the training with at least a 50% return rate and at least a 15% improvement from the baseline pre-test survey (Appendix F, Table 1.2B). Only 50% of the participants (n=8) responded to the post-test survey. The 8 participants had an 85% knowledge score, 93.8% attitude score and 87.5% practice score were observed. Overall, the participants had a total mean KAP score of 88.8%. The 8 participants showed a better understanding of knowledge, attitude and practice with at least a 15% improvement in knowledge score. The attitude score slightly declined by 3.1 percentage points. The slight decline could be attributed to the lack of participation. However, the practice score was unchanged. In order to increase the participation among the participants, reminder emails were sent and direct verbal communication to each participant during shifts to encourage participation in the survey.

A second posttest was given to the 16 participants to reassess the effectiveness of training at 30-days post training with at least a 50% return rate and 80% knowledge retention (Appendix F, Table 1.2C). 8 participants responded to the survey which had a 50% return rate. The 8 participants showed an 87.5% knowledge score, 100% attitude score and 100% practice score with an overall mean KAP score of 95.8% at 30-days post training. There was an increase of 2.5% in the knowledge score and a 12.5% increase in attitude and practice scores.

A third posttest was given to the 16 participants to reassess the effectiveness of training at 60-days post training with at least a 50% return rate (Appendix F, Table 1.3). 8 participants responded to the survey. The results of the 60-day posttest were unchanged from the 30-day posttest data (Appendix f, Table 1.3). It yielded the same results as discussed previously. Overall, the graph from the collected data show that the respondents had a good knowledge, attitude and practice in biohazard as a result of the evidence-based biohazard training program (Appendix F, Graph).

In conclusion, a post self-report confidence survey was given at 60-days post training with an overall 74.5% rating for feelings of preparedness. Of the 16 participants 10 responded with a 62.5% (n= 6) response rate. 47.6% (n= 4) felt that the current place of employment did not have a protocol for the management of common biohazards that impact the pediatric population. 80% (n= 8) were comfortable utilizing the current guidelines and protocols to care for these patients impacted by today's emerging and re-emerging infections. 60% (n= 6) of the participants did feel that they had the adequate resources to quickly access and respond to a potential biohazard situation. 80% (n= 8) of the participants did have experience or training on biohazards. 23% (n= 2) did not feel they were adequately prepared to handle an Ebola patient during the 2014 outbreak, while 62% (n= 6) did feel prepared. In conclusion, the 10 participants had an overall 74.5% (n= 7) confidence post 60-days of training.

Instrument/Tool used

A small pilot study was conducted in August 2019 to assess the validity and stability of the Knowledge, Attitude and Practice (KAP) survey within this study. There were seven participants with similar demographics as this study population. The survey was

anonymous. Their responses provided insight into the consistency of the survey instrument, feasibility of the questions and interpretation of results. After the pilot study, some questions were either edited, omitted and/or revised for clarity from the feedback that was provided by the participants.

The KAP survey template by Iliyasu, Ogoina, Otu et al (2015) was modified for the usage of pre and posttest to represent the clinical contagions that may be faced in the pediatric ambulatory practice within this study (Appendix G). The survey consisted of 30 questions with a mixture of Likert scale, yes/no responses and open-ended questions. The questionnaire used the most up-to-date information from the Centers for Disease Control and Prevention and the World Health Organization. The responses were based on a hundred percentage scale. To define a good score, the study defined the percentage scores as follows: a good knowledge score greater than or equal to 90%, a good attitude score greater than or equal to 80% and a good practice score greater than or equal to 70%. Also, a confidence survey was developed to administer to each participant one week prior to training and 60-days post training. Each survey was anonymous to minimize bias within the study. Survey Monkey© was used to develop and administer these surveys to each participant to their respective emails. A test-retest reliability was used to determine the stability of the KAP survey overtime. The KAP survey by Iliyasu, Ogoina, Otu et al (2015) served as a template for this study. It demonstrated "validity of the KAP questionnaire that was confirmed by a Cronbach's alpha internal consistency of 0.73 for the 3 components" (Iliyasu, Ogoina, Otu et al, 2015). This study questionnaire used similar but modified questions among the three components (knowledge, attitude and practice). However, Cronbach's alpha internal consistency for this study may not be consistent with Iliyasu, Ogoina, Otu et al (2015) due to varying questions.

Kirkpatrick Evaluation Model

The Kirkpatrick evaluation model has served as the primary organizational design for thirty years and was the most comprehensive strategy for evaluating organizational training (Abdulghani, 2014, p. S25) (Appendix H). The model consisted of four levels: reaction, learning, behavior and results. The first level provided insight into the participants' perception of the training course or program. The pediatric ambulatory practice staff reported training was successful. They felt the presentation and lecture was engaging and training was relevant to their job performance. The clinical staff discussed the need for adequate resources at the clinic to ensure proper implementation of what they learned in the evidence-based biohazard training program. The second level was to assess whether the objectives were met based on a posttest given to the participant. From the 60-days posttest, there was an increase of 2.5% in knowledge score and a 12.5% increase in attitude and practice scores from the baseline knowledge, attitude and practice scores. This data showed an increase in knowledge and practice retention of material learned in the training program. The third level evaluated the participants' change of behavior by assessing their job performance. This allowed the researcher to assess if the learned skill or knowledge was translated into practice. During the Coronavirus (COVID-19) pandemic, the staff was able to demonstrate awareness and preparedness by verbalizing the Identify, Isolate and Inform tool by the CDC and was able to apply the tool to their triage practice set forth by the organization. These behaviors exhibited the retention of knowledge and practice from the evidence-based biohazard training program. Lastly, the fourth level of the Kirkpatrick Evaluation model measured the impact on the organization or environment. With the increased knowledge retention, decreased staff complaints and increased confidence and

morale, the pediatric ambulatory practice most likely would see improved patient and employee satisfaction; thus, lead to increased revenue and retention of staff.

Discussion

This qualitative study involved the development, implementation and evaluation of an evidence-based biohazard training program at a pediatric urgent care center utilizing the Identify, Isolate and Inform tool by the Centers for Disease Control and Prevention. The study found that the clinical staff had an increase of 2.5% in knowledge score and 12.5% in attitude and practice scores from the baseline scores, which demonstrated an increase in knowledge retention of material learned in the training program. The self-report post-confidence survey revealed an overall 74.5% feelings of preparedness among the clinical staff 60-days post training (n=10) compared to 56.2% at baseline pre-intervention (n=17). The Kirkpatrick evaluation model applied to the study shows that the clinical staff met the objectives of the educational program, were able to translate knowledge into practice and gained increase confidence as a result of the training program. Although descriptive statistics were used in this study due to a limited sample size (n=8), overall increased knowledge, attitude and practice scores were observed.

Implication for Practice and healthcare policy

Currently, Coronavirus 2019 (COVID-19) has demonstrated the need for an evidence-based biohazard training program within any healthcare facility. This virus has caused a world-wide pandemic with a slow response to contain or minimize the infection, mostly attributed to the lack of a preparedness plan established and/or frequency of training. As of April 17th, 2020, there were

2,074,529 confirmed cases and 139,378 confirmed deaths from 213 countries world-wide (World Health Organization, 2020). This is quite alarming, and numbers are expected to continue to rise.

The failed response of the identification and isolation of suspected or known persons with COVID-19 has proven to be a downfall in the spread of the virus. As of April 16, 2020, the United States has a total of 632,548 cases and 31,071 total deaths (CDC, 2020). Currently, New York is the epicenter of the COVID-19 outbreak. These numbers were steadily trending in an upward pattern at the time of this writing. COVID-19 continues to take a toll on the health care system, putting the educational and practicum of the clinical staff at risk due to no or little biohazard training. Elder (2020) reports that New York doctors and nurses have described the current working conditions as a "war zone", disorganized and lack of personal protective equipment. Della Cava & Hughes (2020) conducted an interview with Maureen Dugan, a 31-year nursing veteran who works for the hospital associated with the University of California-San Francisco who is "alarmed at the lack of communication and training for nurses". She continues by saying that "our administrators say they're planning, but nurses are left out of that planning" and "we just want to be properly trained, communicated to, supported and have protective equipment" (Della Cava & Hughes, 2020, Para 11, online).When developing and conducting this DNP research project, the novel Coronavirus of 2019 was not yet heard of, unfortunately, the global impact of this virus has made the study more relevant than ever before!

This study provides a clear example of why it is necessary to have an established evidence-based biohazard training program using the Identify, Isolate and Inform (3I tool) by the Centers for Disease Control and Prevention. The program will help the nursing staff to understand, identify and manage high-risk patients who have communicable disease(s). Use of this tool with training will

allow the nursing staff to retain knowledge of what actions are needed to keep staff and patients safe, ask clarifying questions, practice donning and doffing personal protective equipment and increase their readiness and confidence in the event of an outbreak or like the current pandemic that the United States and world are facing. In turn, the implication for health care policy is to have a well-established public health emergency preparedness plan, a sizeable stockpile of supplies to ration to the area hospitals or clinical sites in the event of supply shortage, and public education on emergency preparedness via television advertisement, social media posts, etc. The limited data obtained within this study suggests that educational training is imperative and effective through use of the 3I tool and measurement of knowledge, attitudes and practice (KAP) regarding communicable diseases and also may increase confidence among the clinical staff.

Plans for sustainability and future scholarship

Moving forward to have a better systemic wide approach to dealing with an incident or emergency, a disaster management plan should be implemented that includes pre- and post-test KAP surveys to clinical staff, biohazard training program using the 3I tool and confidence surveys (pre- and post- intervention to assess staff's emotional response). The National Preparedness Goals set by the US Department of Homeland Security and the Federal Emergency Management Agency (FEMA) organizes the core capabilities into the five mission areas: prevention, protection, response, recovery and mitigation (FEMA, 2018). Prevention is the act of or practice to stop an incident or event from occurring. Protection is how we protect our citizens and/or clinical staff. This is done through training programs, training exercises and/or surveys. Response is the coordination and management of resources during an incident or emergency. Mitigation and Recovery usually work with each other to establish or try to restore normalcy to the organization and

evaluate the incident or emergency to reduce the loss of property, life or resources. Utilizing these core principles from FEMA for a preparedness plan, health care organizations or facilities are able to adapt this model to their emergency management plan. The five phases for preparedness can be more simply stated into three simple phases, pre-, response and post incident or emergency. The pre-incident or emergency consists of prevention and protection. Response is in the "during event" phase while mitigation and recovery are in the post-incident or emergency phase. For the simplicity of this paper, these three phases will be used to provide future recommendations to healthcare facilities or organizations to encourage an easy-to-digest, well-rounded evidence-based biohazard training program (disaster management preparedness plan) for staff (Appendix I). Below is a list of bulleted recommendations that the research author designed for each phase:

Pre-Incident or Emergency

- Assess the knowledge, attitude and practice of clinical staff by using a KAP survey for clinical staff, to obtain data and assess the needs of the clinical staff
- Administer pre-confidence self-report survey to assess the feelings of preparedness of the clinical staff
- Implement an evidence-based biohazard training program utilizing the 3I tool while using CDC or WHO as a reference
- Provide education and training on the proper method of donning and doffing personal protective equipment (PPE) and appropriate PPE for universal, contact, airborne, and droplet precautions
- Provide disaster management training through FEMA to include chain of command and to educate the clinical staff on possible daily changes during an incident or emergency

- Inventory supplies needed for a disaster and order additional supplies if necessary
- Designate a response coordinator who will be the spokesperson and the lead in an incident or emergency
- Partner with community constituents such as the public health department, local pediatric healthcare providers, local hospitals, and/or emergency management services

Response to Incident or Emergency

- Designate a response team
    - Determine team size appropriate for facility capacity and current staffing
    - During the COVID-19 pandemic at the 15-bed pediatric urgent care clinic in which this study was conducted, the response team consisted of one healthcare provider (physician or advanced practice provider) and one registered nurse
- Daily huddles prior to shift
- Daily informal debriefing post-shift with staff on shift
- Daily inventory of stock and inform response coordinator of supply needs, including PPE
- Daily reminders of universal precautions and precautions specific to incident or emergency
- Educate staff on the details of an incident or emergency to ensure best practice(s) and to provide informed information to parents and/or caregivers

Post-Incident or Emergency

- Mandatory formal debrief of the overall incident or emergency with all clinical and non-clinical staff
- Provide post-KAP survey to clinical staff, obtain data and assess needs for process and quality improvement
- Follow up with community partners as described in the pre-incident or emergency phase to discuss improvement, recuperation, losses and contingency plan(s) for the next incident or emergency
- Re-inventory stock to determine needs for replenishment
- Re-examine preparedness plan such as the evidence-based biohazard training program to meet the learning needs and provide continued education of the clinical staff
- Administer post-confidence self-report survey to assess the staff feelings of preparedness during event

The framework of the evidence-based biohazard training program and aforementioned disaster management plan phases have been recommended for use as a guide for future application by this author (Appendix I). The program may be expanded or modified according to the global changes and emerging or re-emerging communicable diseases. The staff in the pediatric ambulatory practice within this study efficiently implemented the concepts that they learned using the Identify, Isolate and Inform tool that they learned in the evidence-based biohazard training program to minimize the spread of COVID-19; thus, they are able to keep staff, patients and their families safe while providing high-quality care.

Conclusion

A well-prepared nursing staff who is knowledgeable in an evidence-based biohazard training may minimize the spread of communicable disease(s); thus, prevent or decrease mortality, emergency room visits and/or hospitalizations.

Despite the limitation of the sample size of this study (n=8), there is descriptive statistical evidence that the evidence-based biohazard training program using the 3I tool may be effective in the identification and management of communicable disease(s) and is easy to implement. The training program may be an effective preventative measure to minimize infection and prevent the spread of a contagion. This author recommends continued scholarship and research regarding clinical staff's education using an evidence-based biohazard training programs and administering a KAP survey to assess their knowledge retention and a self-reported confidence with a larger sample size to provide increased reliability, stability, and statistical significance.

At the time of this paper, COVID-19 pandemic poses policy considerations on preparedness plans and management within healthcare organizations. Healthcare organizations should consider implementing a disaster management plan to include an evidence-based biohazard training program using the Identify, Isolate, and Inform tool as discussed in this research project.

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Appendix A

Literature Review Table of Evidence

Article #	Author & Date	Evidence Type	Sample, Sample size, Setting	Study findings that help answer the EBP question	Observable Measures	Limitations	Evidence Level & Quality
2	Abdel-All et al, 2018	Cross-sectional/Qualitative study; randomized	11 ASHAs residing in the villages from the three regions in South India received training in the 15 sessions over 5 days	The first and second level of Kirkpatrick evaluation model showed that a mean knowledge score of all ASHAs at baseline was 64%. The overall knowledge score increased to 76% at the post-training assessment. The third level showed that the ASHAs led and facilitated community meetings.	Kirkpatrick evaluation model using pre and posttest	Small sample size; short duration of intervention; did not assess the knowledge in control group and are unable to exclude any other factor that could influence knowledge.	III/B

				The fourth level of evaluation that the ASHAs developed a better understanding of hypertension and improved their skills in clinical anthropometric measurement.			
3	Abdulghani et al, 2014	Qualitative study	116 participants; workshops FDU in the College of Medicine, King Saud University	77.6% of attendees responded to pre and posttest. 24.1% were highly satisfied with the workshop, whereas 53.4% like but suggested improvement for the first level of Kirkpatrick evaluation model. The second level baseline knowledge was 23.3 and increased to	Kirkpatrick evaluation model using Pre and posttest	Lack of participation in pre and posttest; self report	III/B

				posttest score of 32.14. For the 3rd and 4th level of Kirkpatrick evaluation model 56.9% has started research whereas 6.9% had already published articles.			
7	CDC, 2016	Clinical Guidelines	N/A	The 3 steps of identify, isolate and inform were developed for guidance to ambulatory practices to identify those patients with Ebola virus.	Identify, isolate and inform steps	No sample size with proven statistical data to back findings that 3 steps have proven successful; guidance/recommendation for ambulatory practices	IV/A
11	Chea et al, 2015	Brief Report	N/A	The study addresses the need for ambulatory practices to have a assessment tool in place when addressing highly contagious	3 implementation steps: identify, inform, and isolate	No sample size with proven statistical data to back findings that 3 steps have proven successful	IV/B

				illnesses such as Ebola. The author reports early recognition of illness onset and direct referral to appropriate prepared Ebola assessment hospital rather than having patient seek care in an ambulatory care setting is preferred. Also, US ambulatory care providers should remain vigilant and be prepared in likely event that people with this illness seek care at their facility.			
12	Craig et al, 2018	Qualitative study	12 nurses (4 general, 6 general with facility manageme	The aim of the study is to fill knowledge gap by identifying	Semi-structured KAP questionnaire	Small sample size; self report on questionnair	III/C

			nt responsibilities and 2 infection control nurses); Solomon's island	factors that support and undermine surveillance practice. 50% of respondents could describe more than one function of WHO surveillance; all knew the primary purpose of SI-SSS is early detection of outbreaks. 83% viewed surveillance as secondary task. Through KAP, found that surveillance was performed in good faith and financial incentive could motivate nurses; However, this gave insight to researchers that		e could create bias	

				leadership have to find creative ways to motivate nurses.			
16	Jalloh et al, 2014	Cross-sectional design	1413 respondents from Nine districts in Sierra Leone; 53% female and 37% between ages of 15 and 24 years of age	The knowledge, attitude and practice (KAP) identify barriers that hinder containment and use data to set baseline and develop communication and strategies to minimize these barriers.	KAP questionnaire using multistage cluster sampling procedure	Unable to include all 14 districts; self-reporting behaviors may not align with actual practices; may have provided social desirable responses and not actual behaviors; if respondents lived in same household may have completed survey together and not independently	II/B
20	Koenig et al, 2019	Non-experimental/ Qualitative study	N/A	The study uses the 3I tool to identify and isolate those with	3I tool (identify, isolate and inform)	No sample size with proven statistical data to back findings that	III/B

				Pertussis. A Pertussis outbreak occurred in California in 2010 and happens periodically. The researchers modify the current 3I (identify, isolate and inform) tool to help assess, manage and treat those with Pertussis. They surmise that these actions will aid public health in controlling incidence of pertussis cases and ensuring the protection of general public.		3 steps have proven successful	
21	Koenig, Shastry, & Burns, 2017	Non-experimental Qualitative study	N/A	Hepatitis A has presented as a new public health concern. The use of the 3I	3I tool	No sample size with proven statistical data to back findings that	III/B

				tool (identify, isolate and inform) allows for providers to become familiar with the identification and management of Hepatitis A patients as well as adhering to strict isolation precautions. This tool serves as useful instrument to apply in evaluating patients suspected of Hepatitis A exposure or infection.		3 steps have proven successful	
22	Koenig et al, 2016	Non-experimental Qualitative study	N/A	The researchers modified the identify, isolate and inform tool to assess and manage those patients exposed to Mumps or	Identify, isolate and inform tool	No sample size with proven statistical data to back findings that 3 steps have proven successful	III/B

				who has the illness. They also state the tool is applicable to regions with rare incidences or local outbreaks as well as globally in areas where vaccination is less common.			
19	Koenig, Almadhyan, & Burns, 2016	Non-experimental Qualitative study/ Concept Paper	Emergency department	This paper modifies 3I tool to identify patients with Zika virus or who have been exposed. The tool allows for rapid analysis, management and isolation of patients presenting in the emergency department.	3I tool	No sample size with proven statistical data to back findings that 3 steps have proven successful	III/B
17	Koenig, K., 2015	Non-experimental Qualitative Study/ Concept paper	N/A	Middle East respiratory syndrome (MERS) is an emerging infectious	3I tool	No sample size with proven statistical data to back findings that	III/B

				disease that poses a threat for global outbreak. The 3I tool was modified to quickly identify patients with or exposed to MERS. The tool can be applied in any acute care setting and aid in performing rapid and appropriate screenings.		3 steps have proven successful	
18	Koenig, Alassaf, & Burns, 2015	Non-experimental Qualitative Study/Concept paper	Emergency department	The paper explains that identify-isolate-inform tool assists emergency providers to better detect and manage measles patients presenting in the emergency department. This illness is highly contagious and was	Identify-isolate-inform tool	No sample size with proven statistical data to back findings that 3 steps have proven successful	III/B

				eliminated in 2000; however, it became public emergency in 2014 with a large outbreak in the U.S. The tool will allow clinicians to be better prepared with managing patients emerging and re-emerging infectious diseases.			
23	Mwai, Njenga & Barasa, 2016	Descriptive cross sectional design	465 residents from the Mwea irrigation scheme, Kenya; 63.9% female and 36.1% male	KAP in relation to the disease are critical in establishing effective control measures. 92.9% are aware of schistosomias is. 39.8% main source of information are from health care workers; 49% are aware of	KAP survey	The study state, since it was cross sectional study, it was difficult to infer causality.	III/B

				interventional programs; more than half of the participants aware that it is a serious disease; most of the residents thought they are main cause of spreading the disease			
27	Quet et al, 2015	Cross-sectional study	386 doctors from four provinces in Lao's People of Democrati c Republic	99% of participants recognized that knowledge of antibiotics was important to their profession. 96.6% agree that antibiotic resistance is a problem. 59.8% report that there is not enough information on antibiotic prescribing and 35.2% had no training on prescribing. The mean	43 multiple choice KAP survey grouped into seven topics	Multiple choice format may have contributed to social desirable bias; focused primarily on hospital doctors and not within the community	III/B

				score for knowledge questionnaires was 5.9. Nearly all the participants welcomed educational programs on antibiotic prescribing and two-thirds preferred local guidelines.			
29	Shaghaghian, Pardis, & Mansoori, 2014	Cross-sectional study, randomized	145 dentists in Shiraz; 96 men and 49 women; 123 general practitioners and 12 specialists	The study used KAP survey among dentists. The mean knowledge score about PEP was 18.5, no significant difference among genders. 19 dentists considered PEP ineffective in reducing the risk of AIDS. 16 and 50 considered PEP ineffective	KAP survey using random sampling	One limitation was that the researchers trusted the personal statement of the dentists.	III/B

				for prevention of HBV and HCV. None of the dentists believed PEP is completely effective in preventing AIDS and hepatitis. Regarding practices, 41% evaluate patient for risk factors, 28% check the source patient hepatitis status, 64% did not receive preventative measures with mucosal contaminatio n. The KAP survey identified inadequate level of knowledge about PEP in the dentists studied.			
30	Silva et al, 2018	Cross-sectional study	347 students from Ica,	The study examined infection	KAP questionnaire	Minimal information on subject;	III/C

			Lima Norte, and Chorrillos campuses	control among dental students using the knowledge, attitude and practice survey. Through KAP survey, knowledge about infection control was low. It is important to address this knowledge gap through more rigorous curriculum.		self reporting attitudes ward management of infectious disease	
31	Simpson & Scheer, 2016	Literature Review	Studies pertaining to fellowships or subspecialty training in breast surgical oncology and surgical oncology between years of 1990-2014	The Kirkpatrick evaluation model was used to evaluate the graduates' practice experiences and their perceptions of the fellowship training program. 98% of respondents thought they	Kirkpatrick evaluation model	Lack of published papers surveying graduate responses and reactions to training program; Lack of data published demonstrating that graduates are actually acquiring new	V/A

				were well prepared by their fellowship. However, most graduates felt ill prepared for complex techniques, biopsies and radiation techniques. Program evaluation becomes more difficult as it progresses from evaluating at Kirkpatrick level 1 to 4 but more meaningful.		knowledge or technique; responder biases; lack of control survey of residency graduates; lack of evidence stating all specialists participated in a training program beyond a residency in general surgery	
38	Zelenikova et al, 2015	Descriptive cross-sectional study	129 graduate nursing students who completed EBP courses in Pennsylvania	The Kirkpatrick evaluation model was used to evaluate the nursing students perception of the effectiveness of their EBP courses. The internal consistency	Kirkpatrick evaluation model using a 13 item instrument web-based survey	Low response rate; measurement of the evaluation of effectiveness of EBP courses are self reported	II/B

				of the scale, based on standardized Cronbach's alpha was 0.93. Most students felt that the courses are effective.			

Appendix B

JHNEBP Level of Evidence & Quality Rating Scale

JHNEBP Evidence Rating Scales

Strength of the Evidence	
Level I	Experimental study/randomized controlled trial (RCT) or meta analysis of RCT
Level II	Quasi-experimental study
Level III	Non-experimental study, qualitative study, or meta-synthesis.
Level IV	Opinion of nationally recognized experts based on research evidence or expert consensus panel (systematic review, clinical practice guidelines)
Level V	Opinion of individual expert based on non-research evidence. (Includes case studies; literature review; organizational experience e.g., quality improvement and financial data; clinical expertise, or personal experience)

Quality of the Evidence		
A High	Research	consistent results with sufficient sample size, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence.
	Summative reviews	well-defined, reproducible search strategies; consistent results with sufficient numbers of well defined studies; criteria-based evaluation of overall scientific strength and quality of included studies; definitive conclusions.
	Organizational	well-defined methods using a rigorous approach; consistent results with sufficient sample size; use of reliable **and** valid measures
	Expert Opinion	expertise is clearly evident
B Good	Research	reasonably consistent results, sufficient sample size, some control, with fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence
	Summative reviews	reasonably thorough and appropriate search; reasonably consistent results with sufficient numbers of well defined studies; evaluation of strengths and limitations of included studies; fairly definitive conclusions.
	Organizational	Well-defined methods; reasonably consistent results with sufficient numbers; use of **reliable and valid** measures; reasonably consistent recommendations
	Expert Opinion	expertise appears to be credible.
C Low quality or major flaws	Research	little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn
	Summative reviews	undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results; conclusions cannot be drawn
	Organizational	Undefined, **or** poorly defined methods; insufficient sample size; inconsistent results; undefined, poorly defined or measures that lack adequate reliability or validity
	Expert Opinion	expertise is not discernable or is dubious.

**A study rated an A would be of high quality, whereas, a study rated a C would have major flaws that raise serious questions about the believability of the findings and should be automatically eliminated from consideration.*

Newhouse R, Dearholt S, Poe S, Pugh LC, White K. The Johns Hopkins Nursing Evidence-based Practice Rating Scale. 2005. Baltimore, MD, The Johns Hopkins Hospital; Johns Hopkins University School of Nursing.

Appendix C

Identify, Isolate and Inform (3I) Tool Chart developed by the Centers for Disease Control and Prevention

Appendix D

SWOT Analysis & Needs Assessment Chart

SWOT Analysis

(Problem)	(SWOT Analysis to identify a specific problem, list it here)
Strengths: • What is your organization's greatest strength? • Do you consider your organization leadership team strong? Why? • What does your organization offer to its employees that make it worthwhile to belong to your organization? What's in it for them? • Are your colleagues active and engaged? • Additional strengths	• KidMed's greatest strength is delivering high quality care to pediatric patients within Richmond and Stafford, Virginia areas. • The leadership team is exceptionally strong. They listen to their employees concerns and/or issues, love to teach, eager to share their wealth of knowledge and skills, and always looking for innovative ideas to move their organization forward. • Each one of my colleagues is active and engaged. They go above and beyond their job duties, ensure providers are well taken care, supplies and personnel available for the day, handle daily operational needs, assist in repairs as needed and always thinking of new ideas to make the more proficient, effect and safe for all.
Weaknesses: • What is your organization's biggest weakness? • What can be improved? • What necessary expertise / manpower do you currently lack? • Does your organization have adequate resources for this project? • Additional weaknesses	• The biggest weakness I found was lack of a biohazard training program and lack of screening tool. • The development and implementation of an evidence-based biohazard training will be helpful to identify those patients at high risk and staff being knowledgeable and the skills necessary to handle this situation. • There are adequate resources for this project. • Some additional weaknesses may be timing or limited staff participation.
Opportunities: • What is your organization's greatest opportunity? • What environmental trends might impact your organization? • What external changes or factors present interesting opportunities? • Additional opportunities	• The organizational will benefit from an evidence-based biohazard training by leading ambulatory care facilities with staying at the forefront of surveillance, containing the contagion, working with community disaster leaders and keeping staff up to date on the latest biohazard agents and trained on how to handle those patients efficient and effectively while maintaining their safety. • The environmental trends that may impact KidMed are weather, travel, war, economic or political unrest and/or healthy policy.

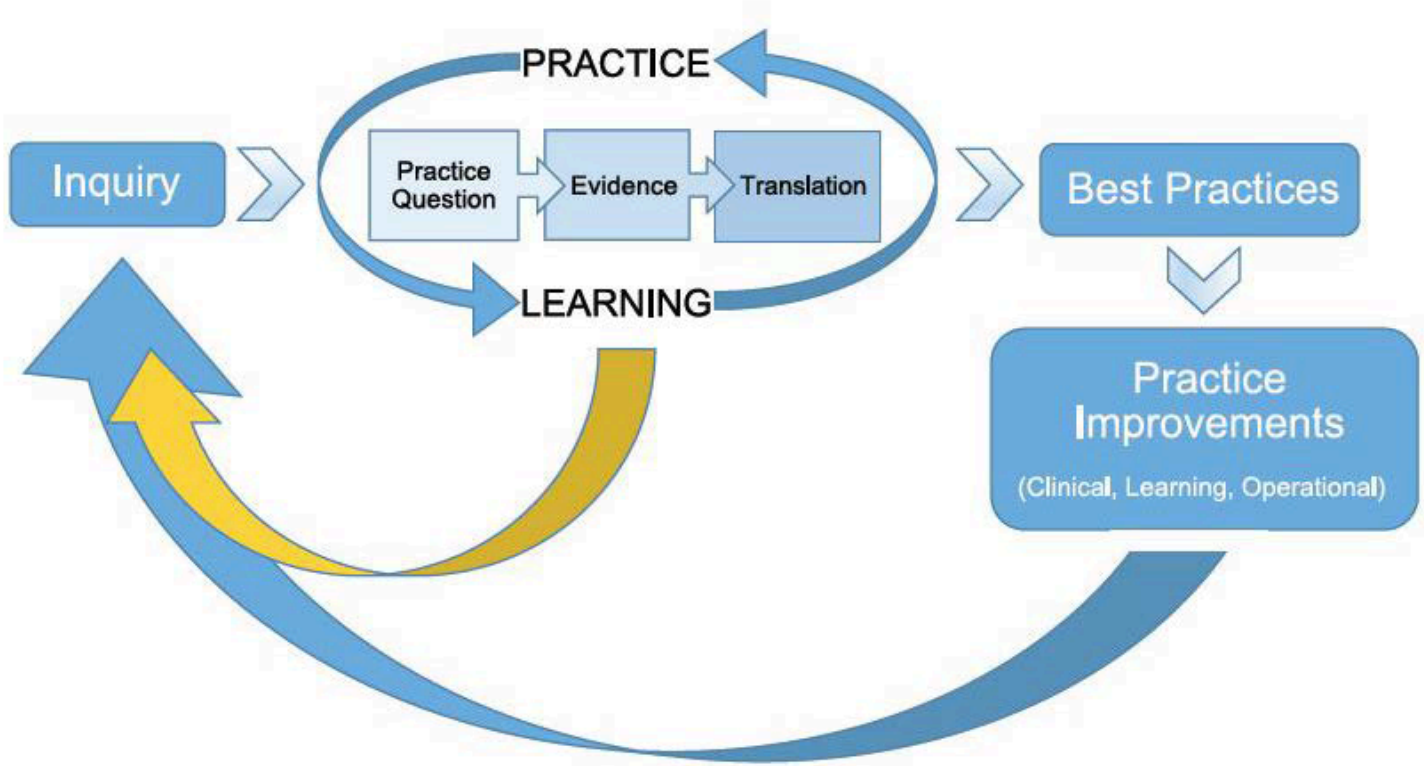
	• Health policy and emerging infectious disease present interesting opportunities. It creates an open environment of discussion concerning safety, containment, and preparedness/plan. This leads to policy changes, addendums, or new legislation.
Threats: • What is your organization's biggest threat? • What obstacles do you face? • What are other organizations doing that yours is not? • What challenges can be turned into opportunities? • Are external economic forces affecting your organization? • Additional threats	• There are minimal threats to the organization. However, staff participation and willingness to ensure safety of all will be the biggest threat. • Obstacles that may be faced are lack of staff participation, resistant to change, limited resources, or timing. • Having worked at another urgent care prior, there is a lack of biohazard and Ebola screening within ambulatory setting. Many allow the provider to ask those screening questions and initiate containment protocol. However, by this point, the patient has come into contact with many individuals including healthcare personnel, which can jeopardize a business, if affected. • Development and implementation of biohazard training program will equip staff with necessary knowledge and skills to identify and care for these patients as well as keep themselves safe. • Minimal external economic forces are affecting my organization since we are the only pediatric urgent care in the area. However, since we open in afternoon, other urgent cares that do not specialize in paediatrics will see our patients. This may have negative impact on our revenue.
What needs to happen to ensure your organization's health and success?	All staff must be vigilant, knowledgeable, and skilled to identify high-risk patients, assess and care for them as well as to notify necessary personnel to keep all who enter our facilities safe. Also, all staff must be continuing to be active, engaged and innovative. This helps keep the health of organization alive and successful.

SWOT Analysis

	Helpful To achieving the objective	**Harmful** To achieving the objective
Internal Origin {Attributes of the organization}	**Strengths** • Strong leadership • Active and engaged staff • Values education and training • Family oriented • Great teamwork • Reputable community partner	**Weaknesses** • Lack of an evidence-based biohazard training program • Limited staff participation • Timing • Distance between the four locations (harder to disseminate information quickly)
External Origin {Attributes of the organization}	**Opportunities** • Creation of an evidence-based biohazard training program • Leading by example for other ambulatory facilities in biohazard preparedness/exposure • Networking with community and political leaders to stay abreast on latest data, trends • Keep staff knowledgeable and skilled	**Threats** • Political and Economic unrest • War • External urgent cares • Local hospitals • Lack of community preparedness or disaster response

Appendix E

John Hopkins Nursing Evidence-Based Practice Model Chart



Appendix F

Demographic and Results Data including Graph

Table 1.1: Demographic Table

Total sample size (n=16)

Previous Biohazard training	**n**	**%**
yes	14	87.5
no	2	12.5
no response	0	0
Position	**n**	**%**
provider	6	37.5
nurse	3	18.75
pct	3	18.75
x-ray tech	2	12.5
front desk representative	1	6.25
other	0	0
no response	0	0
Educational level	**n**	**%**
high school	0	0
vocational	0	0
associate	9	32.14
bachelor	5	17.86
master	3	14.29

medical doctor	2	14.29
other	6	21.43
no response	0	0
Gender	**n**	**%**
female	14	89.28
male	2	10.71
other	0	0
Age	**n**	**%**
16-20	0	0
21-30	6	37.5
31-40	3	18.75
41-50	3	18.75
51-60	3	18.75
61 and older	1	6.25
no response	0	0
race/ethnicity	**n**	**%**
latino	0	0
white, not latino	15	93.75
black, not latino	0	0
other	1	6.25
no response	0	0

Abbreviations:
MD = medical doctor
NP = nurse practitioner
PA = physician assistant
PCT = patient care tech

Table 1.2: Study Variables Result Data

Pre (=0) Data Table 1.2A		
Total sample size (n= 16)		
Test Question	How many participants answered correctly? (n =16)	%
Knowledge		
1	12	75.0
2	12	75.0
3	9	56.3
4	9	56.3
5	9	56.3
6	14	87.5
7	8	50.0
8	16	100.0
9	16	100.0
10	7	43.8
Average	11	70.0
Attitudes		
1	16	100.0

2	15	93.8
Average	16	96.9
Practices		
1	16	100.0
2	12	75.0
3	11	68.8
4	14	87.5
5	16	100.0
6	16	100.0
7	14	87.5
8	13	81.3
9	13	81.3
10	15	93.8
Average	14	87.5

Post 1 (=1) Data Table 1.2B		
Total sample size (n=8)		
Test Question	How many participants answered correctly? (n =8)	%
Knowledge		
1	7	87.5
2	7	87.5
3	6	75.0
4	6	75.0

5	6	75.0
6	7	87.5
7	5	62.5
8	8	100.0
9	8	100.0
10	8	100.0
Average	7	85.0
Attitudes		
1	8	100.0
2	7	87.5
Average	8	93.8
Practices		
1	8	100.0
2	7	87.5
3	6	75.0
4	7	87.5
5	8	100.0
6	8	100.0
7	7	87.5
8	7	87.5
9	6	75.0
10	6	75.0
Average	7	87.5

	Post 30 (=2) **Table 1.2C**	
Total sample size (n=8)		

Test Question	How many participants answered correctly? (n =8)	%
	Knowledge	
1	8	100.0
2	8	100.0
3	4	50.0
4	8	100.0
5	8	100.0
6	8	100.0
7	4	50.0
8	8	100.0
9	8	100.0
10	6	75.0
Average	7	87.5
	Attitudes	
1	8	100.0
2	8	100.0
Average	8	100.0
	Practices	
1	8	100.0
2	8	100.0
3	8	100.0
4	8	100.0
5	8	100.0

6	8	100.0
7	8	100.0
8	8	100.0
9	8	100.0
10	8	100.0
Average	8	100.0

	Post 60 (=3) Table 1.2D	
Total sample size (n=8)		
Test Question	How many participants answered correctly? (n =8)	%
	Knowledge	
1	8	100.0
2	8	100.0
3	4	50.0
4	8	100.0
5	8	100.0
6	8	100.0
7	4	50.0
8	8	100.0
9	8	100.0
10	6	75.0
Average	7	87.5

	Attitudes	
1	8	100.0
2	8	100.0
Average	8	100.0
	Practices	
1	8	100.0
2	8	100.0
3	8	100.0
4	8	100.0
5	8	100.0
6	8	100.0
7	8	100.0
8	8	100.0
9	8	100.0
10	8	100.0
Average	8	100.0

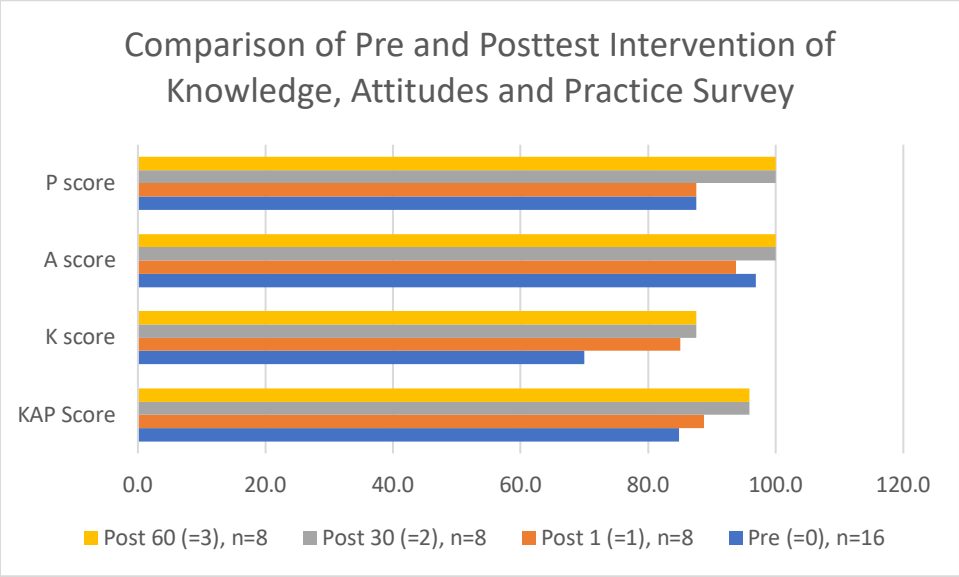
Table 1.3 Comparison of Pre and Posttest Intervention of Knowledge, Attitudes and Practice Results Table

	Pre (=0), n=16	Post 1 (=1), n=8	Post 30 (=2), n=8	Post 60 (=3), n=8
KAP Score	84.8	88.8	95.8	95.8
K score	70.0	85.0	87.5	87.5
A score	96.9	93.8	100.0	100.0
P score	87.5	87.5	100.0	100.0

*Knowledge score cut off ≥80% used to define good knowledge
**Attitude score cut off ≥90% used to define good attitude

***Practice score cut off ≥70% used to define good practice

Graph 1.3 of Comparison of Pre and Posttest Intervention of Knowledge, Attitudes and Practice Results



Appendix G

Modified KAP Survey, Self-report Confidence & Training Evaluation Surveys

Modified KAP Survey

Demographics

1. Have you had previous biohazard training?
    a. Yes
    b. No
    c. No response
2. What is your position within the organization?
    a. Provider (MD, NP, PA)
    b. Nurse
    c. PCT
    d. X-ray tech
    e. Front desk representative
    f. Other
    g. No response
3. What is your educational level?
    a. High School

   b. Vocational
   c. Associate
   d. Bachelor
   e. Master
   f. Medical Doctor
   g. Other
   h. No response
4. What is your age?
   a. 16-20
   b. 21-30
   c. 31-40
   d. 41-50
   e. 51-60
   f. 61 and older
   g. No response
5. What is your race?
   a. Latino
   b. White, not Latino
   c. Black, not Latino
   d. Other, not Latino

e. No response

Attitude

1. Do you think isolation is important in infection control?
   a. Yes
   b. No
2. Do you practice good hand hygiene while at work?
   a. Yes
   b. No

Please rate each of the following in terms of importance.

	Extremely Important	Very Important	Neutral	Low Importance	Not at all importance
Washing hands					
Vaccinations					
Treating a person with infectious disease with dignity and respect					
Having a Biohazard training program as part of my					

competencies at work					
Infectious disease knowledge of transmission and management of illness					
Ability to identify a patient with infectious disease and manage as appropriate					
Use of personal protective equipment					

Practices

1. Do you wash your hands often throughout a workday?
    a. Yes
    b. No
    c. Decline to answer
2. If you suspect someone has an infectious disease, what would you do? Select all that are applicable.
    a. Notify management
    b. Avoid all physical contact and bodily fluids of that person

c. Isolate the suspected person in a designated room
d. Help care for the person by cleaning their bodily fluids
e. Check their temperature by touching their body
f. Inform the local health department
g. Do nothing
h. Not sure
i. Declined to answer

3. What immediate action should be taken in case of direct blood contact with an HIV patient?
    a. Take PEP
    b. Order and draw lab work
    c. Anti-HIV immunoglobulin
    d. I don’t know
4. As a clinician, what protective measures do you take to prevent yourself from injury?
    a. Eyewear
    b. Protective clothing
    c. Face mask and gloves
    d. All of the above
5. After use of gloves with a patient, what do you do with them?
    a. Dispose of them
    b. Reuse them for the next patient

c. Reuse them after sterilization

d. All of the above

6. If a patient suspected of having Tuberculosis walks into your facility, what PPE should you wear?

a. Goggles

b. Gloves

c. Simple face mask

d. N95 mask

7. A patient with rash, fever, and Koplik spots checks into the facility. What is the first thing that should be done?

a. Check temperature

b. Give Tylenol

c. Isolate to a designated room

d. Give them a hug

8. A mother brings in her young child for fever. She reports recent travel from a foreign country. What is your next step?

a. Continue with triage

b. Check temperature

c. Give anti-pyretic

d. Ask more questions to rule out infectious disease

9. Who should be contacted immediately once a patient has been isolated in the urgent care center?

a. Supervisor

b. Friend

c. Hospital

d. Local health department

10. Where are the most up to date guidelines and information on infectious disease located?

a. Cabinet

b. Medication room

c. CDC website

d. Exam room

Knowledge

1. What is the CDC guideline to manage patients with infectious disease in an ambulatory or outpatient setting?

a. Notify the health department

b. Triage, obtain vital signs and treat

c. Identify, Isolate an Inform

d. Ask them to leave the facility

2. How is Ebola transmitted?

a. Mosquito

b. Air

c. Food or Water

d. Blood or bodily fluids

3. Which infectious disease causes microcephaly in infants?

a. Small pox

   b. Shigella
   c. Zika virus
   d. MERS

4. What is the first step in 3I tool?
   a. Inform
   b. Isolate
   c. Invite
   d. Identify

5. What are the symptoms of Ebola virus? Check all that apply
   a. Fever
   b. Headache
   c. Vomiting
   d. Diarrhea
   e. Fatigue/general weakness
   f. Abdominal pain
   g. Bleeding

6. What region is MERS most likely to be found?
   a. Australia
   b. Sweden
   c. Arabian Peninsula

d. Germany

7. What are the sign and symptoms of Tuberculosis? Check all that apply.
    a. cough last 3 weeks or longer
    b. chest pain
    c. hemoptysis
    d. fever
    e. night sweats
    f. weight loss
    g. decrease appetite
8. Measles is a highly contagious viral illness that is preventable, spreads easily and the patient develops a rash. True or False.
9. Why is it important to isolate a highly infectious patient?
    a. To prevent the spread of an infection
    b. To get them a comfortable room to relax
    c. To get a good review
    d. To figure out the exact illness
10. What is the number one way to prevent transmission of infection?

    _____

Self-Report Confidence Survey

1. Does your current place of employment have a protocol for the management of common biohazards that impact the pediatric population?
2. Are you comfortable to utilize the current guidelines and protocols to care for these patients impacted by today's emerging and re-emerging infections such as Measles, Ebola, SARs, or MERS?
3. Do you feel that you have adequate resources to quickly access and respond to a potential biohazard situation?
4. Have you have had any hands-on training on the recognition of biohazards?
5. During the Ebola 2014 outbreak, did you feel adequately prepared to care for a patient who presented with suspected or known Ebola infection?

Training Program Evaluation Survey

Training Attended: _____ Date: _____

Please indicate on the form below your evaluation of the training class you have just attended. Rate the training session based upon the following criteria.

				Expectations			
	Curriculum	Low					High
1	The training met my expectations		1	2	3	4	5

2	I will be able to use the knowledge gained from this course in my current place of employment	1	2	3	4	5
3	The training objectives were identified and met	1	2	3	4	5
4	Class materials were helpful	1	2	3	4	5
5	The presentation was organized and contributed to my knowledge	1	2	3	4	5
	Instructor/Staff					
1	The presenter was knowledgeable in subject matter	1	2	3	4	5
2	The presenter met the course objectives	1	2	3	4	5
3	Good training aids and audios were used	1	2	3	4	5
4	Class participation was encouraged	1	2	3	4	5
5	The presenter was responsive to the student's question(s)	1	2	3	4	5

	Training Questions					
1	How would you rate this training class?	1	2	3	4	5
2	Did this class meet your training needs?	1	2	3	4	5
3	Was the training relevant to your current work environment?	1	2	3	4	5

Comments: _____

_____

Appendix H

Kirkpatrick Evaluation Model

Level 1: Reaction

The degree to which participants find the training favorable, engaging and relevant to their jobs

Level 2: Learning

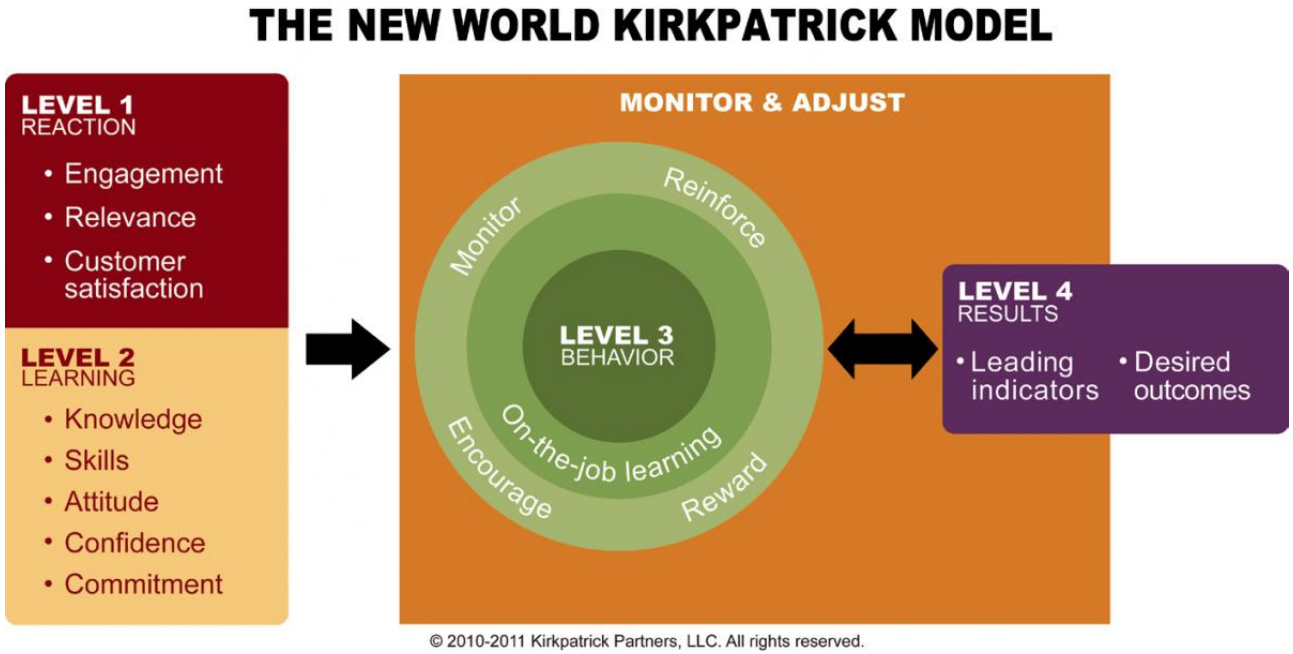
The degree to which participants acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training

Level 3: Behavior

The degree to which participants apply what they learned during training when they are back on the job

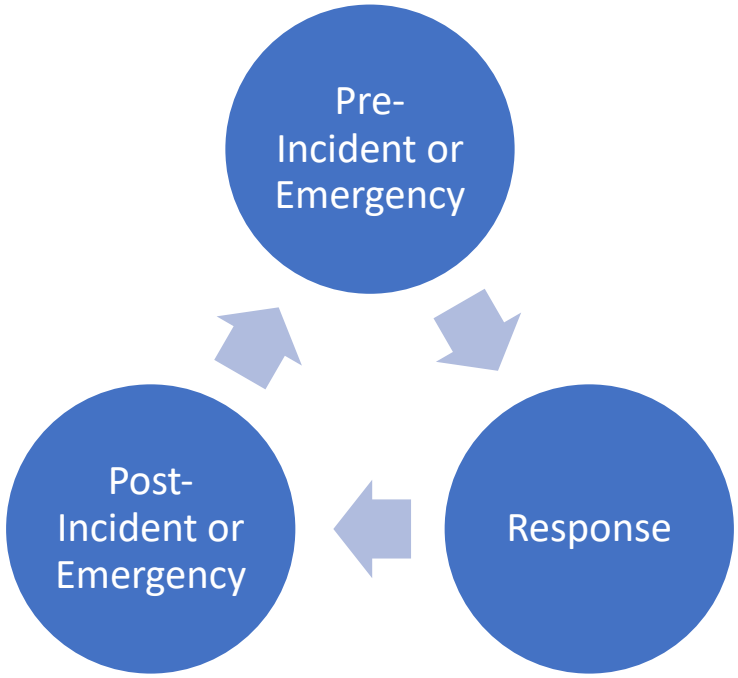
Level 4: Results

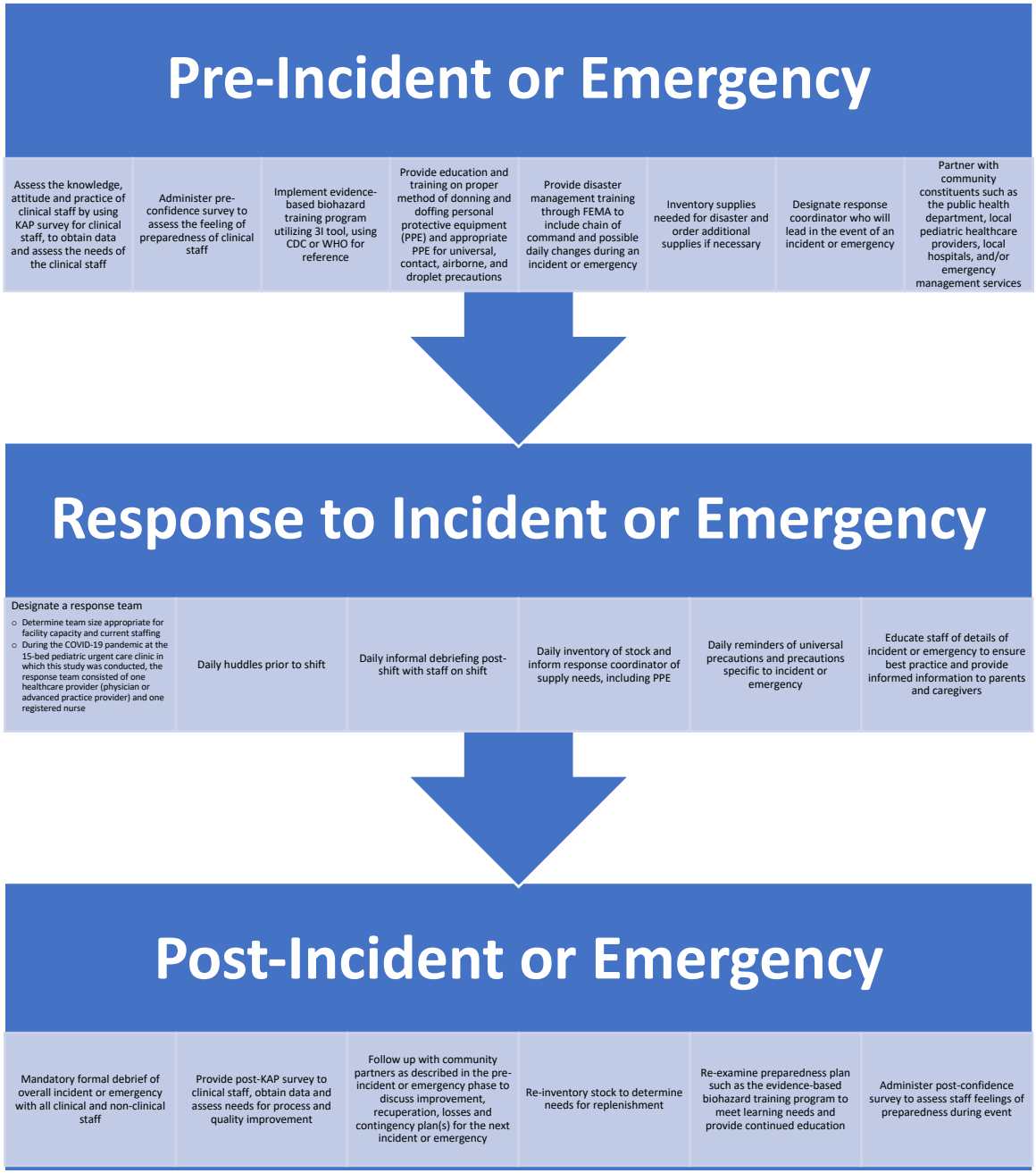
The degree to which targeted outcomes occur as a result of the training and the support and accountability package



Appendix I

Proposed Disaster Management Cyclical Graph and 3 Step Process Flow Chart Recommendations




Pre-Incident or Emergency
Assess the knowledge, attitude and practice of clinical staff by using KAP survey for clinical staff, to obtain data and assess the needs of the clinical staff
Administer pre-confidence survey to assess the feeling of preparedness of clinical staff
Implement evidence-based biohazard training program utilizing 3I tool, using CDC or WHO for reference
Provide education and training on proper method of donning and doffing personal protective equipment (PPE) and appropriate PPE for universal, contact, airborne, and droplet precautions
Provide disaster management training through FEMA to include chain of command and possible daily changes during an incident or emergency
Inventory supplies needed for disaster and order additional supplies if necessary
Designate response coordinator who will lead in the event of an incident or emergency
Partner with community constituents such as the public health department, local pediatric healthcare providers, local hospitals, and/or emergency management services
Response to Incident or Emergency
Designate a response team
Determine team size appropriate for facility capacity and current staffing
During the COVID-19 pandemic at the 15-bed pediatric urgent care clinic in which this study was conducted, the response team consisted of one healthcare provider (physician or advanced practice provider) and one registered nurse
Daily huddles prior to shift
Daily informal debriefing post-shift with staff on shift
Daily inventory of stock and inform response coordinator of supply needs, including PPE
Daily reminders of universal precautions and precautions specific to incident or emergency
Educate staff of details of incident or emergency to ensure best practice and provide informed information to parents and caregivers
Post-Incident or Emergency
Mandatory formal debrief of overall incident or emergency with all clinical and non-clinical staff
Provide post-KAP survey to clinical staff, obtain data and assess needs for process and quality improvement
Follow up with community partners as described in the pre-incident or emergency phase to discuss improvement, recuperation, losses and contingency plan(s) for the next incident or emergency
Re-inventory stock to determine needs for replenishment
Re-examine preparedness plan such as the evidence-based biohazard training program to meet learning needs and provide continued education
Administer post-confidence survey to assess staff feelings of preparedness during event

Appendix J

Research Study Recruitment Handout

School of Nursing
THE GEORGE WASHINGTON UNIVERSITY

nursing@gwu.edu
202-994-7901
nursing.gwu.edu

To whom it may concern,

My name is LaKeshia Evans and I am a student from George Washington University School of Nursing Doctorate program. I am writing to invite you to participate in my research study about evidence-based biohazard training program utilizing Identify, Isolate and Inform tool. This program will help increase the knowledge, attitudes and practices of those that encounter these high-risk patients within a pediatric urgent care center. You're eligible to participate in this study because you are a staff member at KidMed, Inc Stafford location.

If you decide to participate, you will partake in an hour-long lecture of the most common infectious diseases, how to manage the patients and what to do next as well as proper use of personal protective equipment. You will be given a pre and posttest to complete. The test will be short and should take no longer than 20 minutes. The survey will be sent from Survey Monkey to your email on record. All the surveys are anonymous. The time you take out to participate will be compensated as training and you may clock into receive pay.

Remember, this is completely voluntary. You can choose to be in the study or not participate. If you'd like to participate or have any questions, please feel free to email or contact me.

Thank you very much and look forward to working with you.

Sincerely,

LaKeshia Evans, DNP candidate, MBA, FNP-BC

Levans3@gwu.edu

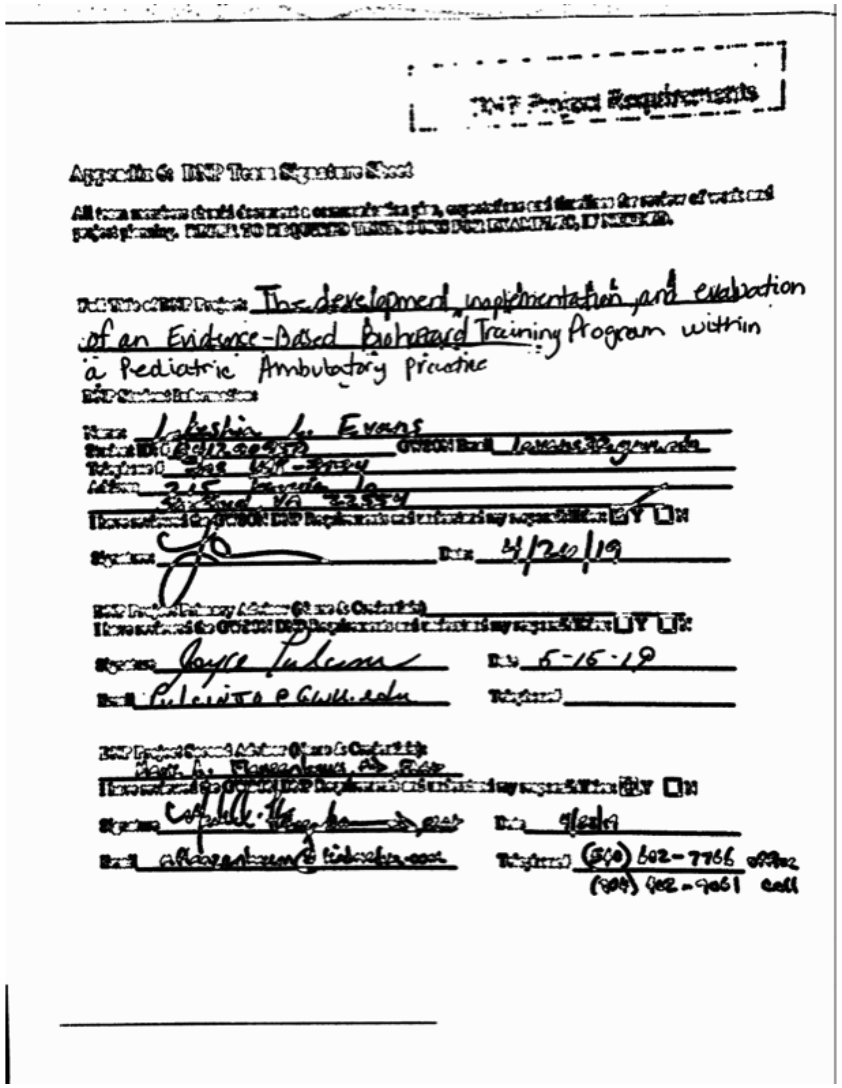
(c): 703-498-7174

____ Yes, I consent to participate in the research study.

____ No, I do not consent to participate in the research study.

Appendix K

DNP Team Signature Sheet



Appendix L

Internal Review Board Documents

From: **SON Research** sonresearch@email.gwu.edu
Subject: Determination of DNP Capstone
Date: June 18, 2019 at 10:37 AM
To: Joyce Pulcini pulcinjo@gwu.edu, levans3@gwmail.gwu.edu

Dear Dr. Pulcini and Ms. Evans,
Regarding the determination worksheet for the project entitled, " The development, implementation and evaluation of an Evidence-Based Biohazard Training Program within a Pediatric Ambulatory Practice ," a determination has been made that your project does not meet the definition of research. That is, a systematic investigation intended to contribute to generalizable knowledge.

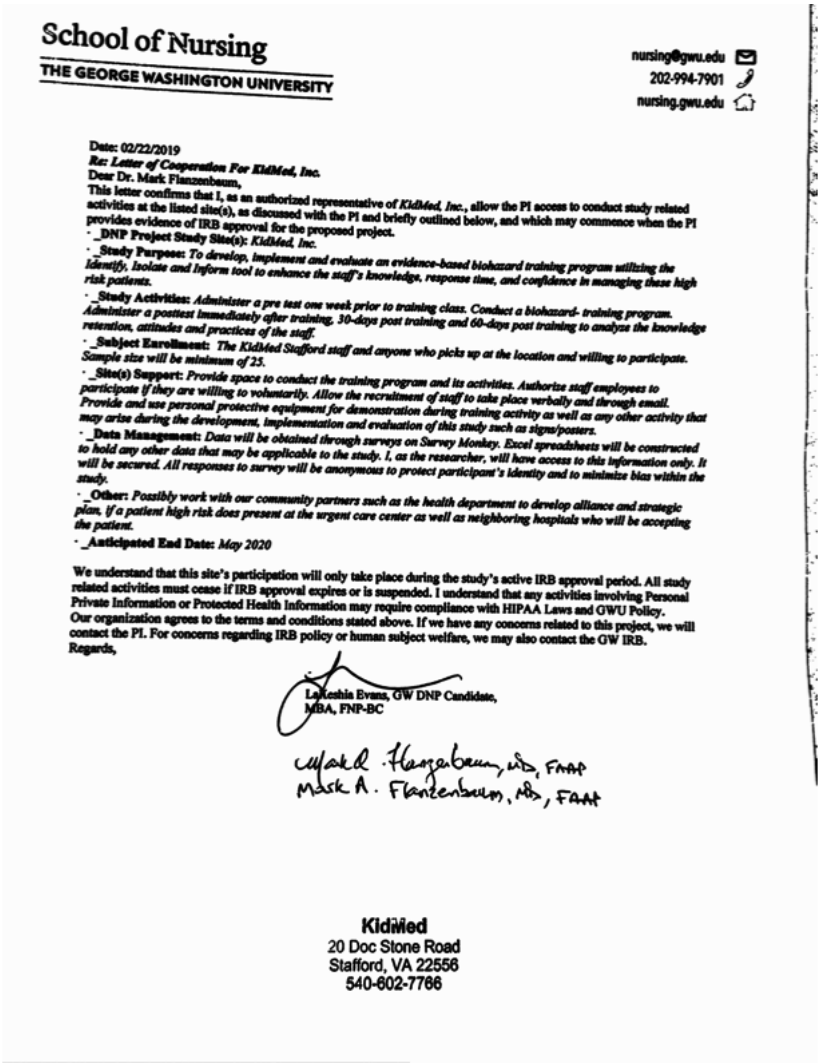
This determination is being made after review of the project documents. The project nature as quality improvement intends to inform internal practice. The project does not aim to inform new theories or external standards of practice. Therefore, further review by the GW Nursing Office of Research or the GW Institutional Review Board is not required (per GW IRB Policy HRP-010, Human Research Protection Program).

Should your project change in any way that it would meet the definition of research, please contact the GW Nursing Office of Research at sonresearch@gwu.edu so we may assist you in proceeding. As a reminder, you are to conduct all projects in an ethical manner regardless of review requirements.

Please do not hesitate to contact me with any questions or concerns regarding this determination.

Kind regards,

Cortni Romaine, PhD Candidate, MS, CIP | Research Program Associate
The George Washington University School of Nursing
Member, GW Institutional Review Board



School of Nursing
THE GEORGE WASHINGTON UNIVERSITY

nursing@gwu.edu
202-994-7901
nursing.gwu.edu

Date: 02/22/2019
Re: *Letter of Cooperation For KidMed, Inc.*
Dear Dr. Mark Flanzenbaum,
This letter confirms that I, as an authorized representative of *KidMed, Inc.*, allow the PI access to conduct study related activities at the listed site(s), as discussed with the PI and briefly outlined below, and which may commence when the PI provides evidence of IRB approval for the proposed project.

- **_DNP Project Study Site(s):** *KidMed, Inc.*
- **_Study Purpose:** *To develop, implement and evaluate an evidence-based biohazard training program utilizing the Identify, Isolate and Inform tool to enhance the staff's knowledge, response time, and confidence in managing these high risk patients.*
- **_Study Activities:** *Administer a pre test one week prior to training class. Conduct a biohazard- training program. Administer a posttest immediately after training, 30-days post training and 60-days post training to analyze the knowledge retention, attitudes and practices of the staff.*
- **_Subject Enrollment:** *The KidMed Stafford staff and anyone who picks up at the location and willing to participate. Sample size will be minimum of 25.*
- **_Site(s) Support:** *Provide space to conduct the training program and its activities. Authorize staff employees to participate if they are willing to voluntarily. Allow the recruitment of staff to take place verbally and through email. Provide and use personal protective equipment for demonstration during training activity as well as any other activity that may arise during the development, implementation and evaluation of this study such as signs/posters.*
- **_Data Management:** *Data will be obtained through surveys on Survey Monkey. Excel spreadsheets will be constructed to hold any other data that may be applicable to the study. I, as the researcher, will have access to this information only. It will be secured. All responses to survey will be anonymous to protect participant's identity and to minimize bias within the study.*
- **_Other:** *Possibly work with our community partners such as the health department to develop alliance and strategic plan, if a patient high risk does present at the urgent care center as well as neighboring hospitals who will be accepting the patient.*
- **_Anticipated End Date:** *May 2020*

We understand that this site's participation will only take place during the study's active IRB approval period. All study related activities must cease if IRB approval expires or is suspended. I understand that any activities involving Personal Private Information or Protected Health Information may require compliance with HIPAA Laws and GWU Policy. Our organization agrees to the terms and conditions stated above. If we have any concerns related to this project, we will contact the PI. For concerns regarding IRB policy or human subject welfare, we may also contact the GW IRB.
Regards,

LaKeshia Evans, GW DNP Candidate,
MBA, FNP-BC

Mark A. Flanzenbaum, MD, FAAP
Mark A. Flanzenbaum, MD, FAAP

KidMed
20 Doc Stone Road
Stafford, VA 22556
540-602-7766